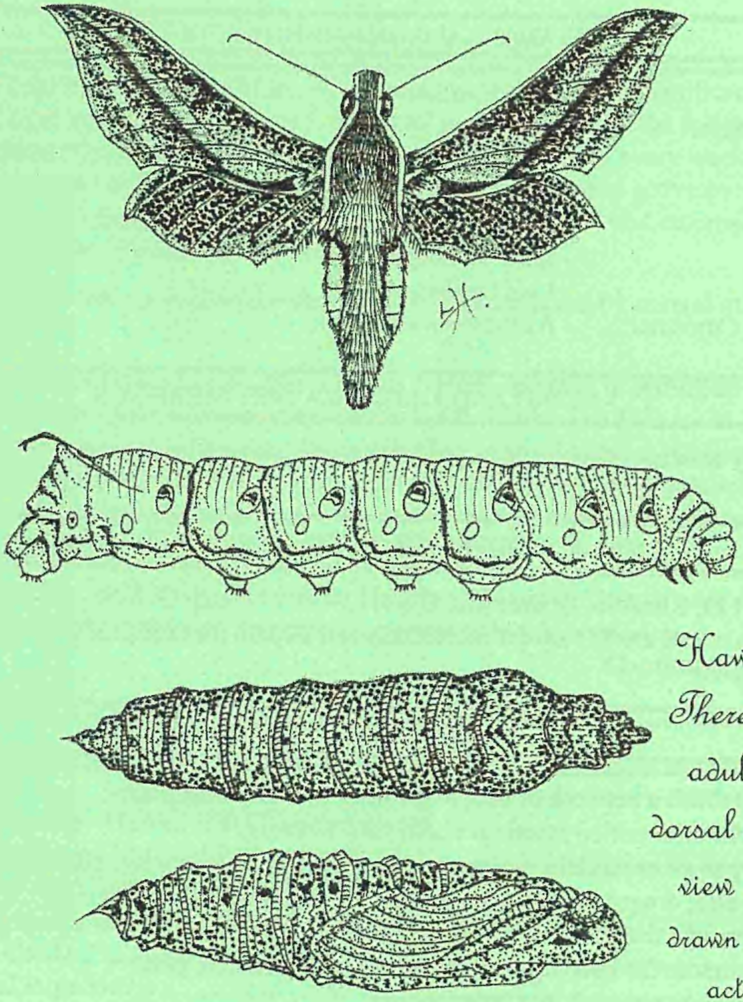

Hawk Moth
*Theretra clotho*
adult, larva,
dorsal and lateral
view of pupa
drawn to approx.
actual size

# Butterfly & Other Invertebrates Club Inc. Newsletter

ISSUE NO: 46 DATE: SEPTEMBER 2007 ISSN: 1326-0006
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## Club Planning and Organizing Group - 2007

| | | |
|---|---|---|
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## Planning and Organization Meetings

A quarterly meeting is scheduled in order to plan club activities and the newsletter. See BOIC Programme.

## Contact Address and Membership Details

PO Box 2113, Runcorn, Queensland 4113

Membership fees are $15.00 for individuals and $20.00 for families, schools and organizations.

## Aims of Organization

- To establish a network of people growing butterfly host plants;
- To hold information meetings about invertebrates;
- To organize excursions around the theme of invertebrates e.g. butterflies, native bees, ants, dragonflies, beetles, freshwater habitats, and others;
- To promote the conservation of the invertebrate habitat;
- To promote the keeping of invertebrates as alternative pets;
- To promote research into invertebrates;
- To encourage the construction of invertebrate friendly habitats in urban areas.

## Newsletter Deadlines

If you want to submit an item for publication the following deadlines apply:
March issue – February 21st
June issue – May 21st
September issue – August 21st
December issue – November 21st

## Cover Drawing

Hawk Moth (*Theretra clotho*) by Lois Hughes

## FROM THE PRESIDENT

With the colder temperatures of the winter months, we see a very significant decline in the number of butterflies flying and it is natural to assume that moths follow a similar pattern. However, Peter Hendry has been running his light trap every weekend for many months and he has found that the moth population remains active over winter. I am sure you will find Peter's series of reports both informative and entertaining and thank him for his enthusiastic contributions.

I know readers will appreciate the various articles contributed by several other members.

We are greatly indebted to Bob James for his Herculean effort in setting up a database, on CD, of the entire past newsletters of the club. The files are in PDF format and can be readily searched for any item or name of interest. Colour images can now be seen as they should be seen. At the last planning meeting, it was decided that, as a token of our appreciation for his contribution, the club would present Bob with a mounted print of a painting of a male Richmond Birdwing butterfly.

The CD, with its label designed by Peter Hendry and Lois Hughes, is now available for purchase. Information on this appears elsewhere in this newsletter.

**Continued on page 6**

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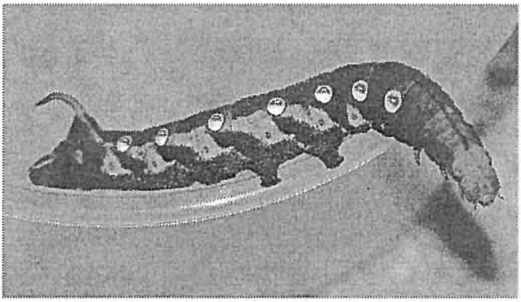
## Hawk Moth *Theretra clotho*

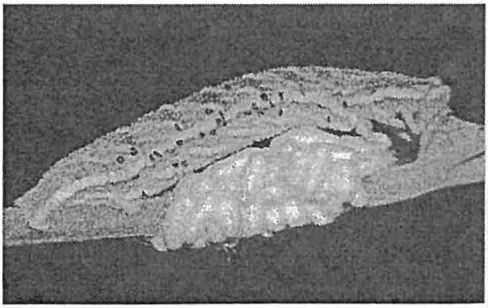
*Theretra clotho* belongs to the moth family Sphingidae commonly known as Hawk Moths. The Sphingidae have a worldwide population of about 1200 species. In Australia there are about 67 named species divided into two subfamilies and 23 genera. *T. clotho* is one of 12 Australian species of *Theretra* and belongs to the subfamily Macroglossinae. It is a light brown colour with a dark line from the apex to the inner margin on both forewings. The hindwings are blackish, dark brown with a lighter yellow-brown around the edges. The tailed larvae can be green or brown and have seven eyespots along each side of the body. The larvae are known to feed on several different plants. Don Herbison-Evans on his "Caterpillars of Australia" website lists the following.

Porcelain Grape *(Ampelopsis brevipedunculata)*, Slender Grape (*Cayratia clematidea*), Kangaroo Vine (*Cissus antarcticus*), Himalaya Woodbine (*Parthenocissus himalayana*), Grapevine (*Vitis* species), Gooseberry Vines (*Saurauia* species), Arums (*Amorphophallus* species), Begonias (*Begonia* species), Guinea Flowers (*Hibbertia* species), Hibiscus (*Hibiscus* species), and Giant Stinging Tree (*Dendrocnide excelsa*).

Lois, our publicity officer and artist in residence, raised *T. clotho* on Native Mulberry (*Pipturus argenteus*) which was the subject of the plant profile in the June 2006 BOIC newsletter (Issue 41). Murdoch De Baar in his article, "Native Mulberry as a garden tree for attracting insects and birds" in Issue 19 of the newsletter listed *T. clotho* on *Pipturus argenteus* as a 1984 record of Max Moulds. In his article Murdoch listed several butterflies, ants, a grasshopper, a katydid, a couple of beetles and several birds as using Native Mulberry as well as the following moths: *T. clotho* and *T. queenslandi,* Forester Moth *Pollanisus eumetopus,* Red-bodied Tiger Moth *Spilosoma canescens,* and an unidentified geometrid.

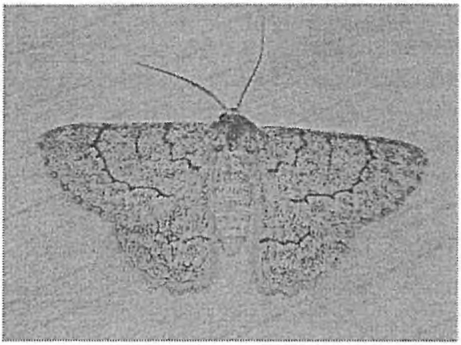


*Theretra clotho* larva

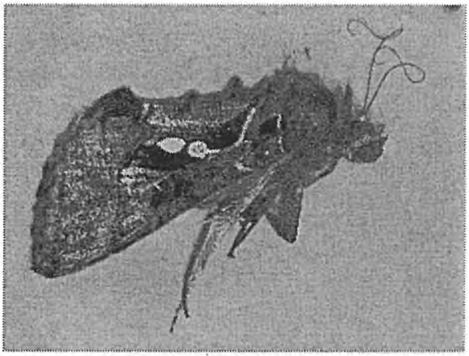


*Pingasa chlora* larva and cocoons of a parasitic wasp

Lois also found geometrid larvae on her Native Mulberry. Several attempts to raise them failed as they had been parasitized. Lois and I affectionately called them herringbone larvae, as they were green with yellowish herringbone-like markings along the top. Eventually Lois had success, followed by myself, with a small larva she had given me. I was able to identify the moth as *Pingasa chlora* a member of the geometrid family in the subfamily Geometrinae. I have since had this moth come to my light trap. Whether these were the same larvae as those seen by Murdoch is uncertain.

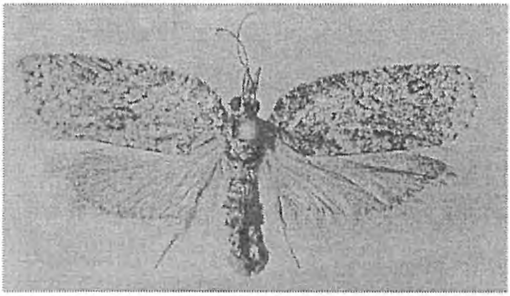


*Pingasa chlora*

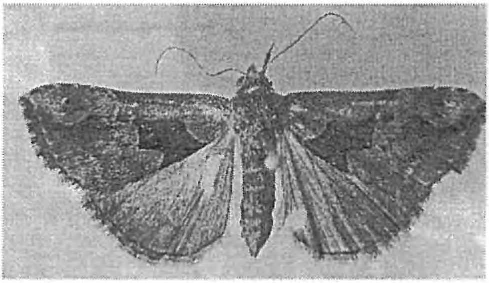


*Chrysodeixis acuta*

For about two years Lois has had a colony of the Jezebel Nymph butterfly (*Mynes geoffroyi*) on her native mulberry and during searches for eggs or larvae she has found six species of moths using the plant as a host. Apart from *Theretra clotho* and *Pingasa chlora*, she has raised *Chrysodeixis acuta*, a member of the noctuid family in the subfamily Plusiinae, another noctuid in the subfamily Hypeninae, *Hypena gonospilalis* and a member of the Tortricidae family in the subfamily Tortricinae, *Isotenes miserana.*

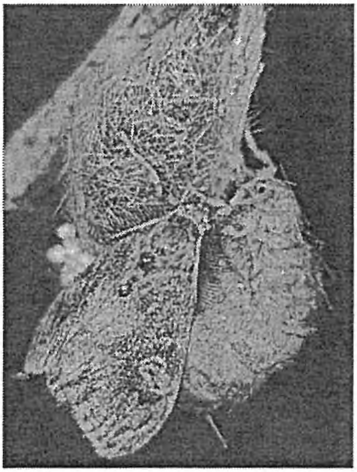


*Isotenes miserana*



*Hypena gonospilalis*

A most recent moth Lois has raised on her Native Mulberry was a wingless female. Anticipating that this was going to be rather hard to identify, I actually found it to be rather easy. As it was still alive and resting on its cocoon, I hung it outside at night and in no time at all she had mated. It turned out to be the Painted Pine Moth (*Orgyia australis*) a member of the family Lymantriidae (Tussock Moths). I have had the males come to the light trap on several occasions. The female started laying eggs on the cocoon, but, unfortunately while moving my camera in for a better shot, it caught on an adjacent branch, causing both cocoon and moths to flick off ---- never to be seen again!



*Orgyia australis* cocoon, male, female and eggs

Photos by Peter Hendry

If you do have a specimen of Native Mulberry growing in your garden, check it out. You never know what you may find. If it is a large caterpillar with a spiny tail, you have a hawk moth. If it has seven eyespots on each side of its abdomen, it is *Theretra clotho*. If it has one eyespot on either side up near the head, it is *T. queenslandi.* If it has fewer or more eyespots, you may have found a third species of hawk moth!

What other beasties use the Native Mulberry?

***Peter Hendry***

Footnote - Many thanks to Ted Edwards who identified *Isotenes miserana* and *Hypena gonospilalis* for me from images I emailed him.

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## From the President - continued from page 3 -

I wish to thank club member Rob Whyte who has generously offered to donate the resources and talents of his firm, Toadshow, to redesign the club website and to host that website. It is planned to have the new site running by the end of this year.

Best wishes. ***Ross***

**Ed. Note** – Whilst trying to send emails to members on various issues, a large number are bouncing. If you have recently changed your address. could you please advise me at bowden@itconnect.net.au? Thank you. Daphne

# Trip to Iron Range National Park, June 2007

Well it's finally going to happen; after months of contemplation we finally decided that we were going to Iron Range. June and July seem to be the best months to go there. The wet season should have been over for a few months, so the track in should be nice and dry.

The first day started just after 1pm. Being a Friday we organized to get off work early and with the car already packed the previous day, we set off from Cairns with the intention of getting as close as possible to Coen, on the Cape York Development Road. Because the road was in the best condition we had ever encountered it, we made it to Coen on the first night, albeit at 8pm The hotel was still open and so we organized accommodation for a well-earned rest.

6 am saw us on the road again, heading north until we came across a sign saying "Lockhart River 118km" to the east.
About 16km in was the first of the larger crossings, the Wenlock River. This actually turned out to be no problem for the Nissan four-wheel drive we were in, so we continued on full of enthusiasm at the thought that the rest of the track might be just as good. 35km further on, we crossed the Pascoe River just as easily, then more and more creeks.

The road was a dry sandy loam and very pleasant to drive on and so we decided we could stop for a while and stretch the legs. Whilst walking along the side of the road, we noticed a large concentration of Ant Plants (*Myrmecodia)* and because these are the food-plant for the larvae of the Apollo Jewel (*Hypochrysops apollo)* we looked for signs of larval activity. One of the larger *Myrmecodia* had a significant amount of larval damage on the leaves and on closer inspection we noticed that a flap had been cut on the face of it. We gently moved back the flap and sitting neatly inside was one larva and a pupa of *H. apollo*; just what I needed for perfect photos. After photographing them, we carefully re-arranged the "front door" and moved on, full of expectation as to what we may find next.

It wasn't long before things came crashing back to Earth. We were now getting closer to the rainforest and, as the name implies, these are created by rain, lots and lots of rain! The road has now turned into a swamp, the sandy loam is now mud, not just ordinary mud, but the real deep wet sloppy stuff. After a few minutes of looking at it and thinking that "it can't be too bad, after all these places must have a solid bottom somewhere!" we attacked it. Left, right, up, down for about two kilometers before we were finally clear of the worst of it.

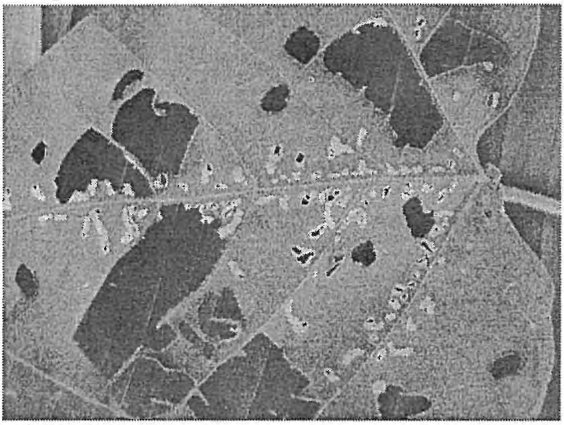
We are finally entering rainforest, not just ordinary rainforest, but the most luscious, vine-filled rainforest that you will find anywhere, the sort of place you would expect to find Tarzan swinging across the road, or at least his Australian cousin! The trip has now slowed down considerably whilst we take it all in. There, all around us are *Litsea, Commersonia, Alphitonia, Macaranga;* butterfly larval food-plants everywhere.

The road is very slippery clay because of the road widening works. 93km in from the Peninsular Road and we have now reached the West Claudie River. I would say that it was a gentle fifty-degree slope of really wet clay before reaching the actual riverbed. The Nissan surprised us with its seemingly effortless way of traversing everything that was put in front of it. The climb back out was no problem and it was only four short kilometers before we reached the Claudie River. This one was the easiest of our river crossings. It has a bridge!

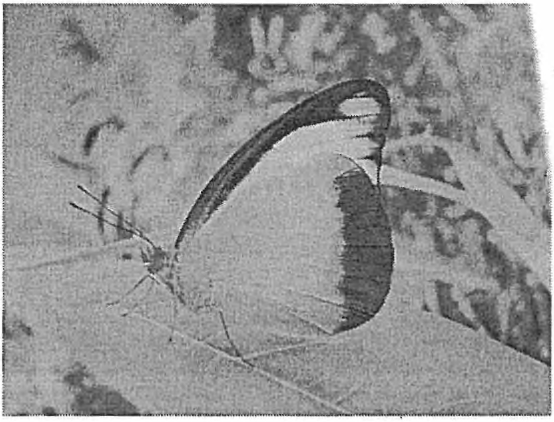
We have now come to an intersection, where we turn to the right to go to the ranger's self-registration booth about a kilometer down the road. We paid our camping fees here and then set off for our camping area. We decided to camp at "Rainforest Campground" because of its relative solitude and its short walk to the toilet facilities at "Cooks Hut Campground." It was now about 10am Saturday morning, a relatively easy trip in from Coen; how easy it is to forget the bad bits when you are surrounded by such incredible diversity.

We pitched our tents and set up camp in relatively dry conditions, then with camera in hand we set off to get what we came for: as many butterfly lifecycle photos as possible in the short time available. Remembering that it is wintertime and conditions down south are colder, I couldn't be sure how many lifecycles we would find here. So I wiped the sweat from my brow and investigated the lycaenid feeding patterns on a large Leichhardt Tree (*Nauclea orientalis)*. It wasn't long before I found the next larva, still positioned in the groove it created on the leaf whilst feeding. It was a larva of the Amethyst Blue (*Hypochrysops elgneri)* one of the beautiful Jewel butterflies found in this area. After getting some great photos, I turned my attention to the bases of the Crows Nest ferns that were growing along the trunks of the tree, in the hope of finding a pupa to photograph; but to no avail. The tree was crawling with the ant *Philidris cordatus*, a small honey-coloured ant that also attends the larvae of *H. apollo, H. theon* and *H. hippurus*. Anyone that has been associated with these ants will understand what I mean when I say they have an uncanny way of finding places that you can't reach, on one's back, belly and even in, yes in your eyes, where they will sting you! I will let these ants calm down for now and come back later to continue my search.

We continued along the road to a slightly more open spot. Here we found that *Litsea breviumbellata* was just re-generating after being devastated by the cyclone from the previous year and were flushed with new growth. We examined the older, lower leaves at first, where we found larval feeding patterns of the moonbeam butterfly *Philiris fulgens kurandae*. It wasn't long before we found both larvae and pupae of this species, an absolutely beautiful little lycaenid butterfly, which I consider to be the most attractive of all of the *Philiris* species. The common name, Bicolour Moonbeam, is an apt description of the upperside wings, being two different shades of blue. I took photos of both the larva and pupa, then next concentrated on the tree's newer, fresher growth where we were told we could find larvae and pupae of another of the *Philiris* species, the Large Moonbeam (*P. Diana papuana)*. The first of these were so hard to find. They are red and furry and sit on the new red-furry growing tips of the Litseas. Once we adjusted our eyes accordingly they were very common, and getting larval and pupal photos was very easy. Down the road another hundred yards was growing *Macaranga involucrata* and after careful searching, we found on it larvae of the Blue Moonbeam (*P. nitens lucina*), but no pupae. Oh well, larval photos will do for now and I will keep an eye on their progress. Not far from this was one of the sandpaper figs, I am not sure which one, but I could tell by the feeding patterns that there must be at least one larva present. Sure enough, larvae of the Purple Moonbeam (*P. innotatus)* were hidden on the underside of the leaves. Thus four different *Philiris* were found within one hundred yards of one another!



*Philiris nitens* (Larval feeding pattern)



Orange Albatross (*Appias ada*)

From here, we decided to look in the opposite direction to get an idea of the plant species that were growing to the south. We stopped at one of the creek crossings to examine the riparian zone, where there were quite a few butterflies flying in the corridor formed by the road through the rainforest. The Orange Albatross (*Appias ada)* were very common, but all were males and this put a damper on my thinking that we might find their lifecycle. This turned out to be true and even though I examined numerous *Crateva religiosa* plants (their host), none indicated fresh feeding. Other butterflies on the wing that day were: Red-bodied Swallowtails, Small Green-banded Blues, Broad-margined Grass-yellows, Large Grass-yellows, Pale Ceruleans, Bordered Rustics, Black-eyed Planes, Yellow-eyed Planes, Hamadryads, Bush-browns and even a female Birdwing. We returned to the camp at about 4.30pm for a well-earned rest and food, whilst contemplating what tomorrow might bring.

**(to be continued in the December newsletter)** ***Bob Miller***

Photos by Bob Miller

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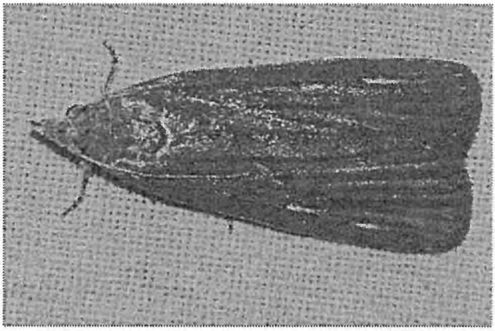
## A long way from home

On the 18/5/2007 I photographed a moth at my regular Friday night light trap, nothing unusual just another moth I had never seen before. I only managed one photo before it flew. Another specimen appeared on the 15/6/2007. This time it was a lot more cooperative. In the meantime I had discovered that it was illustrated in the new moth book, A Guide to Australian Moths by Paul Zborowski and Ted Edwards, but although I was convinced their image matched mine, the distribution was given as "recorded from Cape York south to Rockhampton". As I live at Sheldon a suburb of the Redland Shire next to Brisbane, I thought it seemed to be a long way from home.



*Tirathaba rufivena*

The moth in question is *Tirathaba rufivena* a pest of palms including coconut palms, (surely no moth could be a pest, we all get hungry). Later research gave it a common name, three in fact, Coconut Spike Moth, Greater Coconut Spike moth and the Oil Palm Bunch Moth.

I was still troubled by the distribution. A check in "Moths of Australia" by I F B Common, said it occurred "south to Townsville" and any reference on various web sites seem to quote Common. The black and white photo in Common also threw some doubt into the equation. I could match my images with the one by Zborowski and Edwards, dot for dot, line for line, almost scale for scale. It had to be *T. rufivena* or was it a southerly twin cousin. It was time to call the experts. I sent an email to Ted Edwards with a couple of images attached. Ted graciously replied. The following is his reply in part.

*Dear Peter,*

*Thank you very much for your information on* ***Tirathaba rufivena****.*

*Our knowledge of distribution is extremely sketchy for any moth species so it is no surprise at all that* ***T. rufivena*** *should be found further south than Rockhampton. Your photo is certainly* ***T. rufivena*** *although it is quite a variable species and can often have the red steaks missing. There is no evidence that it could be another more southerly species and, as I say, the extended distribution is very likely.*

*One of the reasons why I tried to put in a precise southern limit to the range of many moths in the book is so that we could learn from enthusiasts finding things outside their range (as known to us from the relatively few records available). So I am particularly pleased with observations such as yours.*

*Some time, if you can spare a voucher specimen for the collection here, it would be appreciated. We normally have to record distributions on the basis of what is in the collection so specimens from the whole range are useful and it is too time consuming to keep databases in addition to the collection so we try to make the collection itself as comprehensive as possible.*
*Cheers, Ted.*

So I would encourage everyone to take a close look at what is in your backyard, you never know what great unknown is lurking out there, a long way from home.

Photo by Peter Hendry **_Peter Hendry_**

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## Collecting biological specimens in the Northern Territory with particular reference to terrestrial invertebrates: guidelines to current legislation and permits

The following Northern Territory Government web site document (http://www.nt.gov.au/nreta/wildlife/permits/pdf/invertebrates.pdf) provides an overview of current legislation and permits regarding the collection of biological material, particularly terrestrial invertebrates, in the Northern Territory under the *Territory Parks and Wildlife Conservation Act* and *Environment Protection and Biodiversity Conservation Act* (*EPBC Act*). The document defines several terms under the Northern Territory Government *Act*, types of permits issued by the Northern Territory Parks and Wildlife Service, and outlines various land management systems in the Northern Territory. Contrary to popular belief that all insects and invertebrates in the Northern Territory (estimated to range from 24,900 to 63,500 species for insects) are protected, only 48 species, from the Phyla Mollusca (31), Chelicerata (13) and Insecta (4), are currently listed as Protected Wildlife. Of the protected species, 35 are designated as Threatened Wildlife, of which five are also listed nationally under the *EPBC Act*. However, all native invertebrates that occur within the boundaries of national parks and other conservation areas managed by the Northern Territory Parks and Wildlife Service or Parks Australia are protected under the *Territory Parks and Wildlife Conservation Act* or *EPBC Act*, respectively. Relative merits of the current legislation and permit system are also discussed.

***Michael Braby***

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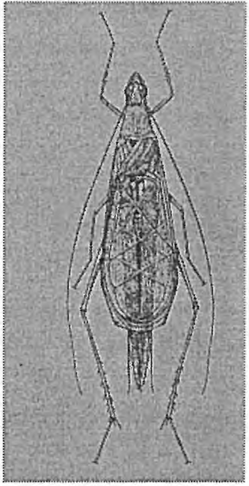
## "Degrees Cricket"—a note from John Moss



*Oecanthus* sp. photographed , with permission, from CSIRO's Insects of Australia

On a recent episode of the ABC radio Science Show, I heard an article relating to a North American tree cricket. The genus and species were not stated, so I consulted the Australian cricket "Bible" which is David Rentz's superb 1996 publication "Grasshopper Country" and not the sports compendium!

The reference showed that tree crickets in Australia belong to the family Gryllidae (True Crickets), subfamily Oecanthinae, which includes the cosmopolitan genus Oecanthus containing 50 species worldwide. Thus it is quite likely that the species referred to in the radio broadcast belongs to this genus, of which I have had personal encounters, with some tape recordings of local and North Queensland species, identified for me by David Rentz.

To get back to the broadcast item; the subject of this note is about the varying number of cricket chirps per minute as it relates to the ambient temperature. The scientist who studied this cricket discovered a direct relationship, which with increasing temperature the number of chirps increased linearly according to a mathematical formula, such that it was possible to estimate accurately the ambient temperature in degrees Fahrenheit, by counting the number of chirps per minute and adding the number 38. Thus, for example, a cricket chirping at 62 chirps per minute (or approximately one a second) reflects an ambient temperature of 100 deg F, which using the conversion formula °C = 5/9 (°F-32), is equivalent to 37.8 deg Celsius.

The scientist did not state the maximum chirp rate, but on a hot summer's evening, at say 40°C, the cricket would be belting along at 104 chirps per minute.

I have looked further into this interesting metabolic relationship and noted an extraordinary coincidence with our human metabolism. The "normal" human body temperature is about 36.9°C or 98.4°F. A cricket singing at that temperature would be chirping at exactly 60 beats per minute, which is also the average healthy human resting heartrate at that temperature and which doubly coincidentally happens to be the number of seconds in a minute!

My conclusions are thus:

1. The number of the beast is not 666 but 60,
2. To avoid bickering and confusion, we should discard both Fahrenheit and Celsius systems, and adopt "Degrees Cricket" (DC for short), and
3. With global warming imminent, pay close attention to those crickets---they will be alerting us to something. Just like the canaries in the mines, when they too fall off their perches we need to start worrying!

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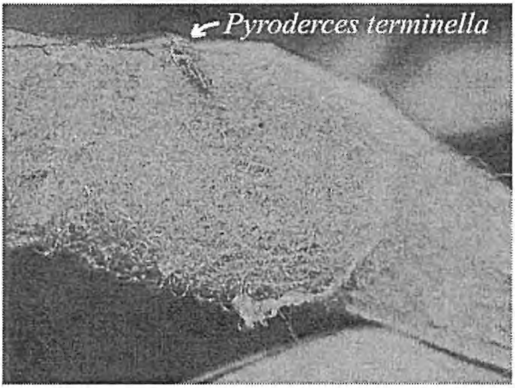
## Communal Pupation?

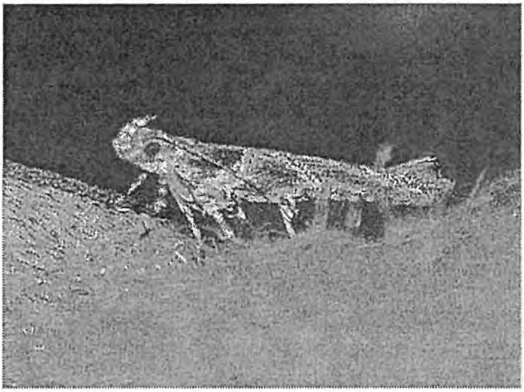
When John Moss handed me a leaf of the water gum (*Tristaniopsis laurina*), which had a pad of golden silk on it, and said, "See what comes out of this!" I had no idea of the surprise I was in for. Looking like a cluster of spider eggs, it was placed in a jar. About two weeks later, I noticed something small had emerged; not one, but, in the end, a total of fourteen! I needed the aid of a ten times magnifier to determine what they were. Moths!

Was this some form of communal pupation, where the larvae had pooled their resources to spin a communal web and pupated inside? The truth turned out to be much stranger than that. Firstly, could I identify these moths? They were so small: about 5mm long and 1mm wide. Where do you start? I started by trying to photograph them. It was then I noticed a red eye, possibly caused by the camera flash. But, no, a close inspection with the ten times magnifier revealed they did have red eyes, although some specimens were dead and these did not have red eyes. I had seen a photo of a red-eyed moth recently! A quick flick through the new moth book "A Guide to Australian Moths" and there on page 85 was a very similar moth, *Labdia ceraunia* in the Cosmopterigidae family. While the colouration of *L. ceraunia* did not match mine, everything else did. I knew mine was very closely related and definitely in the Cosmopterigidae family. A check of the illustrations of the Cosmopterigidae family in "Moths of Australia" by I.F.B.Common,



*Pyroderces terminella* emerging from egg sac finally gave me a name, *Pyroderces terminella*. Then the big surprise!

In his notes on *P. terminella,* Common states it "ranges from northern Queensland to central New South Wales, sometimes invade deserted paper-nests of *Polistes* wasps" and "this species has also been reared from larvae eating dead leaves, the remains of dead insects, and galled flower buds of *Acacia binervata*". But it was the next line that blew me away, "the larvae have also been found infesting the egg-sacs of the (Golden Orb) spider *Nephila edulis* and feeding on the eggs". Common referenced this observation to Austin, 1977. I was able to track this down to an article in the Journal of the Australian Entomological Society titled "A Note On The Life History Of *Anatrachyntzs Terminella* (Walker) (Lepidoptera: Cosmopterigidae), Whose Larvae Are Predacious On The Eggs Of *Nephzla Edulzs* (Koch) (Araneae: Araneidae)". Note: *Anatrachyntzs Terminella* is a synonym of *Pyroderces terminella.*



*Pyroderces terminella*

So I had a spider sack all along! To this date, no spiders have emerged, so I guess their predation was complete and you can chalk one up for the moths that did not become a meal for a spider!

Photos by Peter Hendry

***Peter Hendry***

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## Note on the emergence times of adults of *Catopsilia gorgophone gorgophone* (Boisduval, 1836)

A short series of nine *Catopsilia gorgophone* adults was obtained at Chapel Hill, Brisbane between 24th May and 9th June 2006. The third and fourth instar larvae were collected at Indooroopilly, Brisbane, feeding on *Senna surattensis* subspecies *retusa* [(Vogel) Randell] otherwise known as *Senna gaudichaudii* (Hooker & Arnott, 1832).

According to Braby, adults of this species emerge before dawn. However, the emergence of these nine specimens indicates that their emergence behaviour is more in line with that of *Catopsilia pomona* (Fabricius, 1775). All the adults were of the normal form.

The dates and approximate times of emergence are tabled below.

| | | |
|---|---|---|
| 24-5-06 | 1 male | between 10-00 - 11-00 am |
| 30-5-06 | 1 female | 1-30 pm |
| 2-6-06 | 1 male | between 1-15 - 4-00 pm |
| 3-6-06 | 1 male | 9-15 am |
| 3-6-06 | 1 male | 11-00 am |
| 4-6-06 | 1 male | 9-15am |
| 4-6-06 | 1 female | 12-45 pm |
| 7-6-06 | 1 female | 10-00 am |
| 9-6-06 | 1 male | 9-30 am |

Acknowledgements : My thanks to Ross Kendall for supplying the larvae for this study.

Reference : Braby, M.F, 2000. *Butterflies of Australia: their identification, biology and distribution.*
CSIRO Publishing, Collingwood, Victoria; xx + 976 pp.

***Graham Forbes***

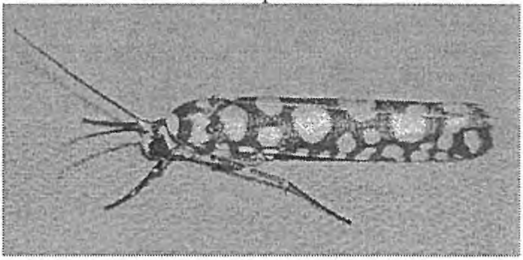
## AT THE LIGHT TRAP

# (My experiences of Light Trapping for Moths in my backyard at Sheldon, Redland Bay)

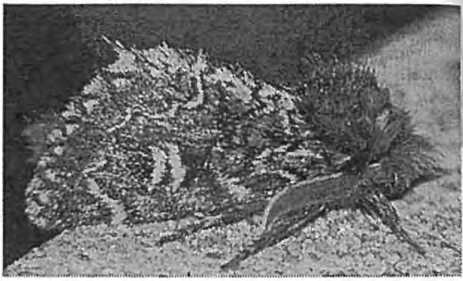
It is mid August and in the last couple of weeks the number of moths coming to the light has increased dramatically. Last night while trying to take photographs I had them in my hair, over my face and often finding their way down the back of my shirt.

Each week I add new species to the list, which is a long way from being sorted. It really is a case of one step forward, three steps back, with many still to be named and hundreds of photos yet to be filed in any sense of order. Last night I added a new family to the list in the way of a new species *Atteva niphocosma* a member of the Yponomeutidae family of moths in the subfamily Attevinae. In his book "Moths of Australia", Ian Common notes that the larvae of *A. niphocosma* feed on *Polyscias murrayi.* This is a very rare tree in the Redland Shire with only a few specimens known from Mt. Cotton. However *P. elegans* is found throughout the Shire two of which, although planted, I have growing in my backyard. It may prove to be a host plant. *A. niphocosma* is a small to medium moth with a wingspan of about 28mm. The forewing is orange-ochre with white spots with and the hind-wing is orange. There are three other named species in the genus in Australia. All four are rather similar with *A.*

*megalastra* being very similar to *A. niphocosma*, with a slightly different array of white dots; while *A. albiguttata* and *A. charopis* both have a bicolour hind-wing in orange and gray and with *A. albiguttata* having smaller white dots on the fore-wings which also have dark apices.

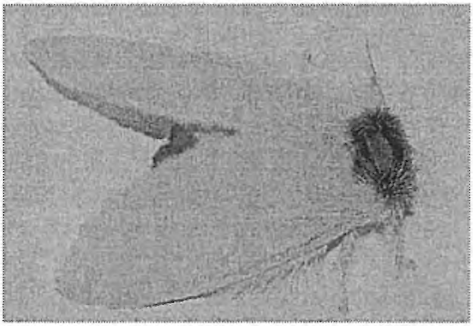


*Atteva niphocosma*

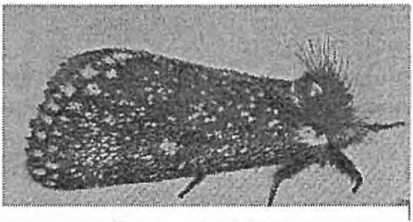


*Cynosarga ornata*

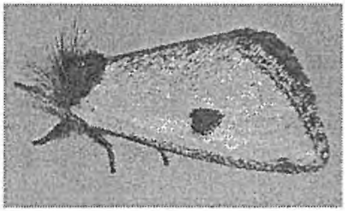
Last week I added another species to my list of Thaumetopoeinae a subfamily of Notodontidae in the form of *Cynosarga ornata.* As the name implies this is a rather ornate species, while rather dull in colouration. It has lots of wiggle lines in reddish-brown, black and white on a greyish background on the fore-wing while the hind-wing is plain grey. It has wingspan of about 30mm, is the only member in the genus and the larva is listed as feeding on the She-oak, *Allocasuarina littoralis.*



*Trichiocercus sparshall* (female)



*Epicoma contristi*

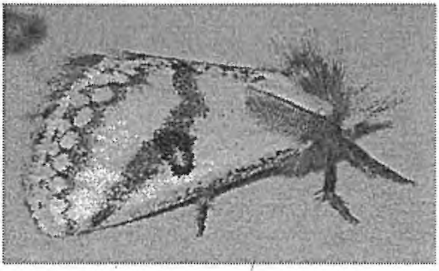


*Epicoma melanospila*

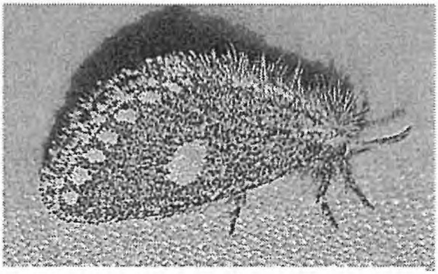
Other Thaumetopoeinae moths that I have photographed here at Sheldon, include *Trichiocercus sparshalli, Epicoma contristis, E.melanospila, E. melanostricta,* and *E. protrahens. Trichiocercus sparshalli* was featured in an article I did called Cold Weather Moths, in the March 2007 Issue 44 of our newsletter which included photos from a property on the New England Tableland in New South Wales. I have also photographed it on my bush block west of

Bundaberg. Here at Sheldon I was able to photograph a female where all others were males.

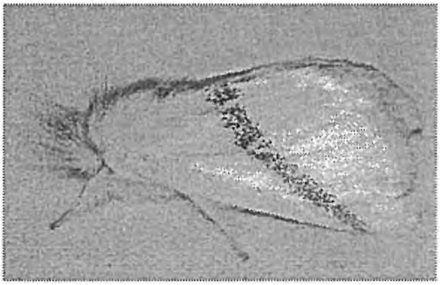
*Epicoma* is a genus containing 19 named species in Australia. In Common's Moths of Australia several species are listed under the genus *Marane* and Thaumetopoeinae is treated as a family in its own right, Thaumetopoeidae. Another species, *Mesodrepta harpotoma* which I managed to photograph on my bush block west of Bundaberg, is yet to make an appearance here at Sheldon.



*Epicoma melanostricta*



*Epicoma protrahens*



*Mesodrepta harpotoma*

***Peter Hendry***

Photos by Peter Hendry

## AUSTRALIAN NATIVE BEES #11

## The Cadaghi Conundrum (Part 1)

Many people are aware that the Cadaghi (or Cadaga) tree is not popular with stingless beekeepers, but perhaps fewer know the full story of the puzzling relationship between our Australian social bees and this native tree. In human terms it is a tale of enticement and duplicity. In evolutionary terms, a rather perplexing strategy for survival.

The Cadaghi (*Corymbia torelliana* but also known as *Eucalyptus torelliana*) is a medium sized evergreen tree that occurs naturally in a small well-defined area of tropical North Queensland centred on the Atherton Tableland. Despite this limited natural distribution it is surprisingly tolerant of different climatic conditions and soil types. It is also relatively quick growing and as a result it has been widely planted by Public Authorities and private individuals in urban and rural areas of Queensland and New South Wales.

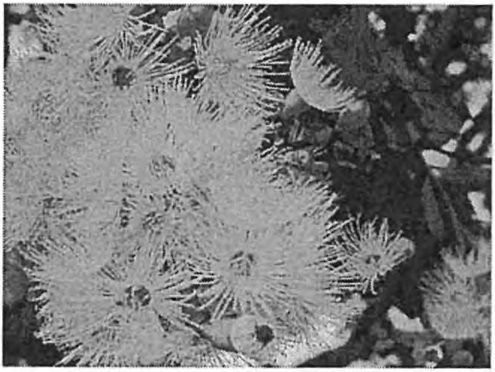
The Cadaghi is an attractive tree, especially when young, putting forth new growth covered in a pink to reddish fuzz. In very mature trees long Eucalyptus type leaves replace the broad leaves of younger trees. It flowers profusely, usually in late spring to early summer. The creamy white, scented flowers provide a bountiful harvest for stingless bees and for all other creatures attracted to nectar and pollen.

The Cadaghi is an attractive tree, especially when young, putting forth new growth covered in a pink to reddish fuzz.

A tree that is hardy, grows quickly and produces an abundance of nectar and pollen in spring when stingless bee colonies are expanding, would seem to be ideal, but some stingless beekeepers consider *Corymbia torelliana* to be the greatest single threat to the wellbeing of their hives. Eucalypts and related tree species expect a service from bees and other insects in return for the nectar and pollen they provide. This is normally limited to carrying their pollen to other flowering trees to effect cross-pollination, thereby ensuring perpetuation and diversity. However, the Cadaghi requires quite a bit more and in the view of many beekeepers exacts a heavier toll than is necessary in the way it exploits stingless bees.

*Corymbia torelliana* is hardy and tolerant of different soil types. This Cadaghi is rubbing shoulders with mangroves in a Moreton Bayside suburb.

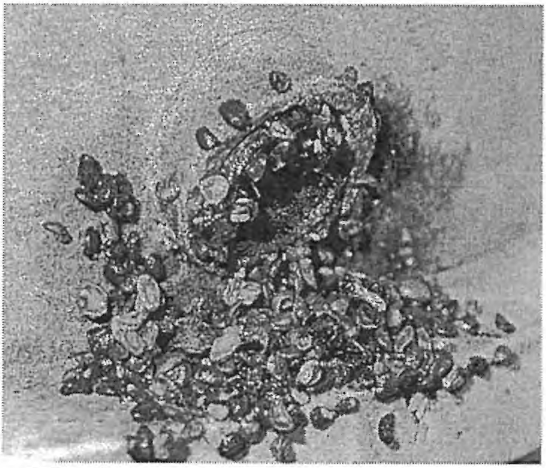
By December or January the pollinated flowers of the Cadaghi have matured into round brownish 'gumnuts' containing the tree's mature seeds. These seeds are just the right size to fit the corbiculae (pollen baskets) of stingless bees, by which means the bees transport them back to their hives in the hundreds or maybe thousands. When a returning forager has a seed attached to both rear legs she appears to be carrying miniature saddlebags as she struggles to keep the load in the air. Some undoubtedly fall by the wayside with their heavy burden which probably provides a better result for the tree than those that actually make it back to the colony.



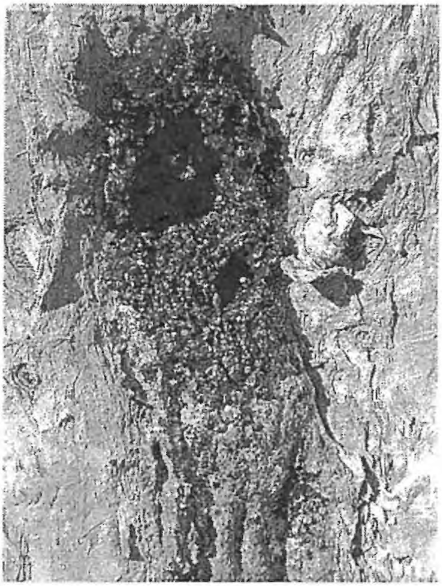
The Cadaghi's creamy white, scented flowers, provide a bountiful harvest for stingless bees.

The gumnuts contain seed just the right size to fit the pollen baskets.

The seeds rapidly accumulate around the entrance of *Trigona carbonaria* hives because they stick to the tree resins that bees of this species usually plaster around their front door as a form of defence. However, many more seeds get carried inside where they are either incorporated into the hive's cerumen structure or are later removed and dropped a short distance away during hive cleaning operations. They remain viable for some time and provided conditions are favourable these discarded



KITH with Cadaghi seed (above)– Cadaghi seeds can accumulate in large numbers around the entrance of a *Trigona carbonaria* hive.



seeds will germinate in the vicinity of the hive. Sometimes stingless bee colonies can be found by using the presence of Cadaghi seedlings as a guide.

It is now widely believed that the Cadaghi uses the stingless bee as its primary natural agent for seed dispersal. This is no mean feat on the part of the tree because obviously bees collect nectar and pollen; they have no use for seeds. In the next installment we will not only explore the ingenious arrangement the tree employs to trick the bees into transporting its seeds, but also the unexpected and sometimes disastrous consequences that can befall the bee colony while performing this involuntary service.

***John Klumpp***

All photos by John Klumpp

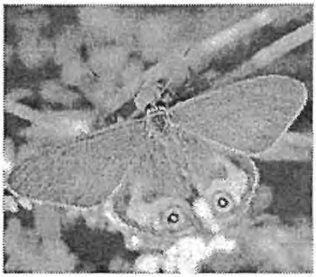
## ERROR

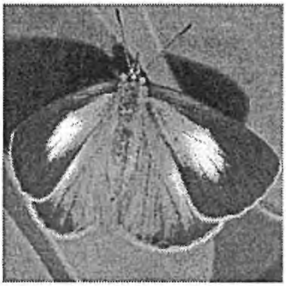
In Newsletter #45 we showed a picture of an egg of (supposedly) the Goliath Stick Insect, *Eurycnema goliath,* photographed from CSIRO's Insects of Australia. Paul Brock, co-author of an upcoming field guide of Australian phasmids, made the following comment – "Incidentally, the egg on p. 5 is that of *Eurycnema osiris*, not *goliath.* Before I revised *Eurycnema* in 1998, they were lumped together as one species, but the eggs of *goliath* are very different. I was amazed nobody had latched onto it before, but even so the taxonomy was complex, I had to restore *osiris* as valid, as the described type (a nymph) had been synonymised with a different species. The enclosed picture may be of interest. I discussed the association with ants in the article. " (page 11 Newsletter #45 "Australian stick and leaf insects")

## IN THE GARDEN WITH PETER

25th August, 2007. The sun is trying to come out after a week of rain, which has the north coast in flood. Here at Sheldon we have received 113 mm of good soaking rain. I have just returned from outside where I noticed lots of activity on and around my flowering specimen of *Thryptomene saxicola. T. saxicola* is one of the few West Australian plants I have not managed to kill. It is a low shrub to 1m high with small pale pink flowers in winter and spring.

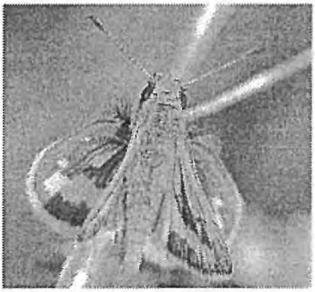
In between the cloud cover I managed to photograph four species of butterflies, Common Pencil-blue (*Candalides absimilis*), Plumbago Blue (*Leptotes plinius*), Brown or Common Ringlet (*Hypocysta metirius*) and the Greenish Grass-dart (*Ocybadistes walkeri*). Nearby I also observed the Orange Ringlet *(Hypocysta adiante*). With a week to go before spring, I am hoping for a bumper butterfly season this year and the signs are looking good.


Common Ringlet
(*Hypocysta metirius*)


Common Pencil-blue
(*Candalides absimilis*)

Plumbago Blue
(*Leptotes plinius*)

***Peter Hendry***


Greenish Grass-dart
(*Ocybadistes walkeri*)

Photos by Peter Hendry

## BOOK REVIEW

## "A Guide to Australian Moths" – Book review by John T. Moss

1990 was a landmark year for the students of moths in Australia – both amateur and professional – with the publication of the late Dr. Ian Common's "Moths of Australia". This was a very technical book in parts but had descriptions and illustrations (many in colour) of about 1,500 of the approximately 20,000 to 30,000 species estimated to occur in Australia.

Since then there have been a series of publications on specific groups of moths mostly produced and published by the CSIRO, which are more of a technical nature and of little relevance to most amateur lepidopterists.

This new 224 page moth publication by photographer and entomologist Paul Zborowski and BOIC member and moth taxonomist Ted Edwards, fills a gap for many of us who wanted more practical and up to date information on the identification, biology, distribution, family structure, relevance to the Australian environment and their importance to humans.

69 of the (82-85) families of Australian moths are treated in a logical sequence of chapters. Although there is some current controversy about number of and arrangements of families, families with superfamilies and genera with families, the authors have taken a modern approach that "is consistent, but not identical, with recent books on Australian moths". Furthermore, the authors state that "The families are arranged in a sequence commencing with those that retain the more primitive features and progress to those with more recently developed features".

The introductory chapters set out steps to take in identifying many of the moths that come to light in our homes as well as in our attractant ultraviolet light traps. They also give hints on at least identifying to families many of the smaller more difficult moths that we might usually overlook.

Although only 400 images are included, showing only about 2% of the moth fauna, the examples give a good indication to which family any moth encountered would belong. More importantly, these full colour photographs are of live specimens in their natural resting positions.

The introductory and general chapters also cover and answer the many questions frequently asked about our moths, such as:

- What is a moth?
- Difference between moths and butterflies
- Why they are so successful
- Why are there so many species?
- Why are there so many wing shapes and patterns?
- How well do moths see?
- Why are they attracted to light?
- How do moths find mates?
- Can moths hear?
- What do they feed on?
- How long do they live?
- What influences their distribution?
- Have any become extinct?
- What use are moths, and
- Why study them?

The book also provides many curious facts about the unusual aspects of moth biology, including details on day-flying species, crypsis or camouflage, moths mimicking wasps and other insects, moths (e.g. Bogong moths) that cluster in immense numbers, moth larvae as "Witjuti grubs", larvae with stinging hairs, gills etc and larvae that exhibit striking predator frightening patterns (e.g. Imperial Fruit Moth)!

There are also interesting chapters

- on moth migration,
- larvae as "hairy caterpillars" that cause skin rashes
- moths that produce cyanide for release in their defence
- moths that produce ultrasonic calls that insectivorous bats learn to associate with a bad taste and
- moths that use these calls to "jam" the bat's sonar devices!

If that wasn't enough, the authors have also included a chapter discussing moth size and comparisons with overseas species, concluding that Australia probably has the largest moths in the world by wing size (Hercules moths) and weight (Cossid or wood-boring moths).

CSIRO publishing and the authors are to be congratulated on producing this most interesting and useful book which I enthusiastically recommend to both amateur lepidopterists and the general natural history readership. The only criticism that I have is the relative lack of information on moth larval foodplants. This is not the fault of the authors but is an area where we can all make contributions, which should add both new information and enjoyment to their study.

The book is available by mail order from CSIRO Publishing, P.O. Box 1139, Collingwood, Victoria 3066 at the retail price of $39.95 plus $5 postage and handling. Alternatively, the club can supply this book for $36 plus postage of $5.

## RELEASE OF CD-ROM OF BOIC NEWSLETTERS

Following the tremendous amount of work put into this project by club member Bob James, we are pleased to offer the CD-ROM for sale to members. You will be able to search the entire database for whatever interests you, plus you will see many of the photos in the later newsletters in colour. Cost to members is $20 plus P & P of $2. Non-members $35 plus P&P of $2.

## SNIPPETS

from Vol 41, part 2, May 2005 : News Bulletin of the Australian Entomological Society Inc.

- Entomological Society of New South Wales – In April, the Society heard of a fascinating account of changes in suburban insect populations by Courtenay

Smithers of the Australian Museum. Courtenay has maintained records of abundance of a number of species since the 1970's and he has noted a marked decline in some that were once quite common. Courtenay suggested that the ubiquity of street lighting may be an explanation for the increasing rarity of some species.

from Vol. 43, part 3, August 2007 : News Bulletin of the Australian Entomological Society Inc.

- A significant boost for entomology in the NT has been the appointment by Biodiversity Conservation of three entomologists in the last couple of years: Michael Braby in Darwin, Anne Walters in Katherine and Chris Palmer in Alice Springs. Michael Braby has been finishing off surveys relating to completion of the National Recovery Plan for the Gove Crow Butterfly (*Euploea alcathoe enastri*), and reports that the trip in June was very successful. The last surveys are planned for August.
- The NT Field Naturalists Club butterfly group is continuing surveys in the north-western Top End, including a re-survey of Kadadu National Park, which has already greatly expanded our knowledge of the Park's fauna
- There is an excellent new web site on Tasmanian Lepidoptera (http://www.tasleps.net/)created by Alan Melville. It contains several images of butterflies and moths found in Tasmania (and other parts of SE Australia) with notes on some species. Alan has mainly used his own photos to create the site but in order to fill gaps he would welcome contributions from other people. If you have photos that you wish to share, Alan can be contacted at tasleps@gmail.com
- Queensland Museum – Belated congratulations are due to Geoff Monteith, who was awarded a 2007 Queensland Museum Medal. Two medals are awarded most years, to honour individuals who have made a major contribution to a field relevant to the Queensland Museum. Geoff has been a major force in collecting and surveying rainforest invertebrates in Australia and the South Pacific since the early '60s. His extensive fieldwork resulted in more than 750 new species being named and many of his collections are housed at the Museum as a unique study resource by researchers worldwide.
- The Queensland Museum has launched a revised edition of its best-selling "Wildlife of Greater Brisbane" with mostly new photography by QM's photographers and over 100 extra pages. This time it is accompanied by four pocket guides, including "Ants of Brisbane" by Chris Burwell, with photographs by Jeff Wright. The other pocket guides cover freshwater fish, raptors and snakes but the ant guide has outsold them all and already is scheduled for reprinting. The main book also has a much-expanded insect section, covering flies and ants for the first time. "Wildlife of Greater Brisbane" sells for $32.95 and the pocket "Wild Guides" for $9.95 each.

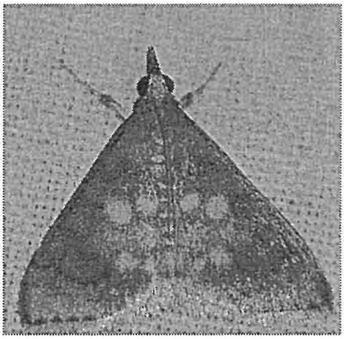
## SEED BANK NEWS

We have a quantity of various butterfly host plant seeds available (see previous newsletters). Seeds are available by sending two 50c postage stamps to BOIC Seed Bank Curator, 140 Henderson Road, Sheldon 4157. Please supply your name and address and which seeds you require. Let us know if there are specific seeds or plants you require and we may be able to help you.

## LETTERS

**"Yes, Don!"**

Daphne Bowden forwarded me an email from Don Herbison-Evans (from Concord, Sydney), part of which enquired about whether members had seen *Trigonoorda gavisalis*. Don described it as a "wonderful lurid purple and orange moth", which feeds on mistletoes. Speaking to Daphne over the phone, I said that I doubted that I would have seen a mistletoe moth as the fact is; I still know so little about moths that relating them to food plants is a long way off. So to my surprise, on opening the email and connecting to Don's website, there it was, that wonderful little moth that came to my light trap, for a once only appearance, a couple of weeks ago. I was so taken by it at the time as it looked like someone was shining a light through its wings from the other side. Unlike so many photos that I take which "sit on the back burner" waiting to be processed, I had catalogued this moth straight away and found it, filed under a folder of it's family name, Crambidae, within a second folder, it's subfamily name, Odontiinae. Under the image, I have noted: "named by Walker in 1869; picture taken 14/08/2007 at 10:33pm; location: Sheldon, Redland Shire, Qld, 153d 12m 26s –27d 34m 43s.



*Trigonoorda gavisalis*

Unfortunately my specimen is not as brightly coloured as Don's first image and looks more like the second, but to answer your question Don, "Yes!"

**Peter Hendry**

To see Don's images connect to http://www-staff.it.uts.edu.au/~don/larvae/cram/gavisal.htm

## BACK ISSUES

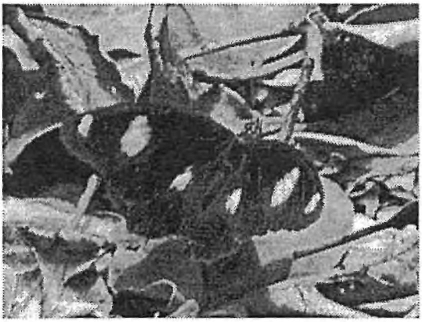
Back Issues of the Club Newsletter are available at a cost of $2 each plus postage (1-2 copies $1.10 - 3-6 copies $1.50). **All newsletters (issues #1-45) are now**

**available on a CD-ROM at a cost of $20 plus $2 P&P to members and $35 plus $2 P&P to non-members.**

## Jon's New Caledonian Butterfly Quiz

Following on from Jon Marshall's French butterflies, he has now provided us with some butterflies from New Caledonia for you to name. Watch out – don't be tricked!

**1**



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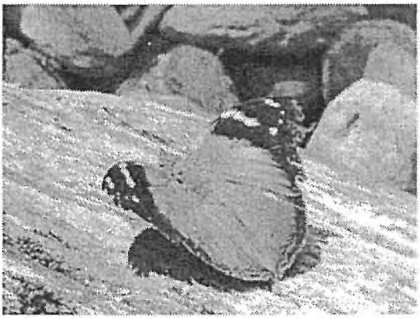

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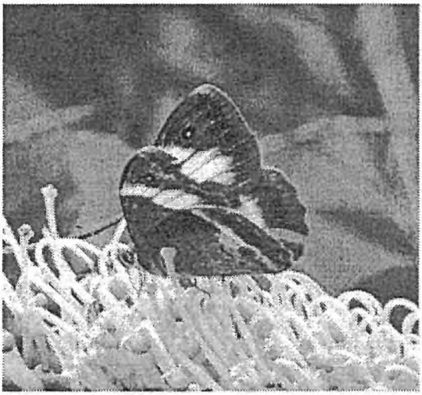

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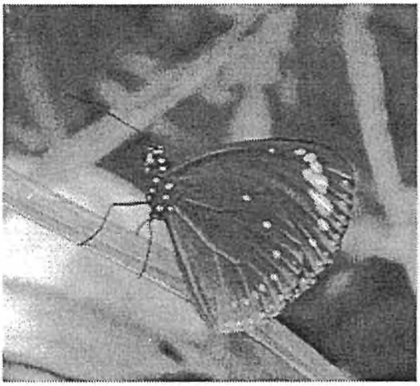

## Butterfly and Other Invertebrates Club Programme

**Picnic in the Bush at Eprapah**

What: We propose a walk around the arboretum and butterfly gardens. We will be observing the progress of butterfly hostplants, in particular the recent Birdwing Butterfly Vine plantings in conjunction with the Richmond Birdwing Recovery Network. Bring your lunch which we can have as a picnic at one of several suitable sites on the property. Insect repellent will be provided if necessary. If time permits we may visit the Swordgrass Brown butterfly translocation site at nearby Clay Gully.

When: Saturday, **22nd September** – meet at 10am

Where: Meet at the Mungara building on the scout property, corner of Cleveland-Redland Bay Road and Colburn Avenue, Victoria Point.
Contact: John Moss 3245 2997 (and on the day 04 2759 6753)

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### A Visit to Greening Australia Nursery

What: A visit to the Greening Australia Nursery at The Gap, followed by lunch at the Bellbird Grove Day Use Area off Mt Nebo Road, 15 minutes past the Brisbane Forest Park Headquarters. The address of the nursery is: Twahamwe Cottage Paten Park, 57 Paten Rd, The Gap. There is a great map showing the location here: http://www.qld.greeningaustralia.org.au/GAQOTSASP/01_cms/details.asp?ID=2 On the website you can check to see which species they have in stock. You can also search a database of plant species that are native to your suburb. If the drought continues then I guess some people may not want to purchase plants - however the nursery is quite a good spot to see butterflies! It really is a fantastic nursery, selling a large diversity of native plants At the proposed lunch spot - there are several short walking tracks leaving from the Bellbird Grove Day Use Area that we could walk along to spot invertebrates, either before or after lunch.
When: Saturday, **20th October** – meet at the Nursery at 10am
Bring: Your lunch
Contact: Alisha ph. 3275 1186 – email jon@escapenet.com.au

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### Planning and Management Meeting – all members welcome

What: Our planning meetings are informative and interesting. As well as planning our activities we share lots of information. All members are welcome as this activity is also a general meeting of members.
When: Saturday, **10th November** from 2 pm
Where: At Salisbury, exact address will be advised on RSVP
Contact: Alisha ph. 3275 1186 email jon@escapenet.com.au or Daphne on 3396 6334 email bowden@itconnect.net.au to RSVP or for more details

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### A Presentation by Ross McKinnon at Mt. Coot-tha Botanic Gardens

What: Ross McKinnon, Director of the Mt. Coot-tha Botanic Gardens, will talk on "How does our (Botanic) garden grow" followed by morning tea provided by the Brisbane City Council. After this we will proceed to various parts of the Gardens observing moth and butterfly host plants.
When: Sunday, **11th November**. Meet at 10.30am sharp
Where: Meet in the library precinct of Mt. Coot-tha Botanic Gardens
Contact: For catering purposes contact John Moss on 3245 2997 no later than noon on Friday November 9th to inform him of your attendance.

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**If you plan to attend one of the above events, please contact the person indicated in case, for some unforeseen circumstance, the event has had to be postponed or cancelled**

## DISCLAIMER

The Newsletter seeks to be as scientifically accurate as possible but the views, opinions and observations expressed are those of the authors. The Newsletter is a platform for people to express their views and observations. These are not necessarily those of the BOIC. If inaccuracies have inadvertently occurred and are brought to our attention we will seek to correct them in future editions. The Editor reserves the right to refuse to print any matter which is unsuitable, inappropriate or objectionable and to make nomenclature changes as appropriate.

## ACKNOWLEDGMENTS

Producing this newsletter is done with the efforts of:

- Those members who have sent in letters and articles
- Lois Hughes who provides illustrations including the cover
- Daphne Bowden who works on layout, production and distribution
- John Moss and Martyn Robinson for scientific referencing and proof reading of various articles in this issue of the newsletter
- Helen Schwencke for conceiving the original idea for a Newsletter

We would like to thank all these people for their contribution.

## ARE YOU A MEMBER

Please check your mailing label for the date your membership is due for renewal. If your membership is due, please renew as soon as possible.

**Membership fees are $15.00 for individuals and $20.00 for families, schools and organizations.**

**Would you please advise bowden@itconnect.net.au if you get or change an email address.**

Butterfly and Other Invertebrates Club Inc.
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Memb. No. **30** due July 2008

Dr.Michael Braby
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**Next event —– Picnic in the Bush at Eprapah - Saturday, 22nd September**